

2013

NONRESIDENTIAL COMPLIANCE MANUAL

FOR THE 2013 BUILDING ENERGY EFFICIENCY STANDARDS

TITLE 24, PART 6, AND ASSOCIATED
ADMINISTRATIVE REGULATIONS IN PART 1



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Acknowledgments

The Building Energy Efficiency Standards (Standards) were first adopted and put into effect in 1978 and have been updated periodically in the intervening years. The Standards are a unique California asset and have benefitted from the conscientious involvement and enduring commitment to the public good of many persons and organizations along the way. The 2013 Standards development and adoption process continued that long-standing practice of maintaining the Standards with technical rigor, challenging but achievable design and construction practices, public engagement and full consideration of the views of stakeholders.

The 2013 Standards revision and the supporting documents were conceptualized, evaluated and justified through the excellent work of Energy Commission staff and consultants working under contract to the Energy Commission, Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas and Electric Company, and Southern California Gas Company. At the Energy Commission, Maziar Shirakh, P.E.; and Martha Brook, P.E. served as the project managers and senior engineers. Bill Pennington, Deputy Division Chief of the Efficiency and Renewable Energy Division, provided overall guidance to the staff and consultants. Eurlyne Geiszler served as the Office Manager for the High Performance Buildings Office. Pippin Brehler and Kristen Driskell provided legal counsel to the staff. Other key technical staff contributors included, Gary Flamm; Patrick Saxton P.E.; Jeff Miller, P.E.; Payam Bozorgchami, P.E.; David Ware; Tav Commins; Rob Hudler; Owen Howlett; Danny Tam; and Nelson Pena. Additional staff input and assistance came from Ron Yasny; Seran Thamilseran; Brian Samuelson; Chris Olvera; Jim Holland; Todd Ferris; Joe Loyer, Alan Marshall; the Energy Hotline staff; and the Energy Commission's Web Team. Key Energy Commission and CASE consultants included Architectural Energy Corporation, Bruce Wilcox, Taylor Engineering, Proctor Engineering, Benya Lighting Design, Chitwood Energy Management, Davis Energy Group, EnerComp, McHugh Energy, Energy Solutions, E3, PECl, and the Heschong Mahone Group.

The authors are grateful to the many people and organizations that contributed to the development and production of the Standards and the supporting documents. The documents reflect, to a large extent, the comments made by the many people who took time to carefully review earlier versions. Reviewers who significantly contributed to the content include members of CABEC and CALBO. Special thanks go to Panama Bartholomy, the former Deputy Director Efficiency and Renewable Energy Division for his vision and support of the 2013 Standards.

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*The Energy Commission dedicates the adoption of the 2013 Building Energy Efficiency Standards to **Valerie T. Hall**, (November 28, 1952 - December 21, 2010), Deputy Director of the Efficiency and Renewable Energy Division for her more than 32 years of dedication to excellence in the development and implementation of energy efficiency programs in California with the most aggressive energy efficient building standards in the country and for being a model for others to follow.*

Abstract

This manual is designed to help building owners, architects, engineers, designers, energy consultants, builders, enforcement agencies, contractors and installers, and manufacturers comply with and enforce the 2013 Title 24 California Building Energy Efficiency Standards (Standards) for low-rise residential buildings. Written as both a reference and an instructional guide, this manual can be helpful for anyone that is directly or indirectly involved in the design and construction of energy efficient nonresidential buildings. This manual is intended to supplement several other documents that are available from the California Energy Commission (Energy Commission). These are the: (1) 2013 California Building Energy Efficiency Standards, which were adopted May 31, 2012 and become effective January 1, 2014; (2) Reference Appendices for the Standards; and (3) Residential Alternative Calculation Method Reference and Approval Manuals. This manual provides a summary of the principle changes in the 2013 Standards relative to the 2008 Standards. The technical chapters cover building envelope, mechanical / heating ventilation and air conditioning (HVAC) systems, water heating (including swimming pool system requirements), interior and for outdoor lighting permanently attached to the building, and the solar ready zone requirements. Mandatory measures, prescriptive requirements and compliance options are described within each technical area, subsystem or component. Other subjects that are covered include the compliance and enforcement process, including design and preparation of compliance documentation through field verification and diagnostic testing; computer performance approach; additions, alterations and repairs; New Solar Home Partnership (NSHP) requirements; and HERS (Home Energy Rating System) raters.

Keywords: title 24, energy, energy efficiency, low-rise residential buildings, building envelope, domestic water heating, HVAC, indoor outdoor lighting, performance approach, prescriptive approach, mandatory requirements, residential compliance manual, HERS rating, diagnostic testing, solar, residential cool roofs, residential additions alterations repairs, climate zones

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